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## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: AZIZ HASSAN et al.  
Serial No: 10/669,357  
Filed: 25 September 2003

Atty. Docket No.: BSN5DIV  
Examiner: ERMA C. CAMERON  
Group Art Unit: 1762

For: REPULPABLE WAX

### DECLARATION UNDER 37 CFR 1.132

I, Gregory G. Borsinger, do hereby declare that:

1. I am one of the inventors of the above-referenced U.S. Patent Application.
2. I make this Declaration in support of the above-referenced U.S. Patent Application.
3. This Declaration is being submitted simultaneously with an Amendment in reply to Office Paper No./Mail Date 110905, mailed 14 November 2005.
4. This Declaration is being submitted in response to the Examiner's rejection of Claims 30-39, 41-42 and 45 under 35 U.S.C. §103(a).
5. I have been working in the chemical industry for over twenty-five (25) years.
6. I have an undergraduate degree in Mechanical Engineering, am licensed in the states of New Jersey and New York as a Professional Engineer (P.E.), and hold a Master of Business Administration (M.B.A.) degree.

7. I had been employed by Allied-Signal Corporation, where I served as a Manager for the corporation's Polyethylene Wax business.

8. During the period I was at Allied-Signal, the corporation was considered to be this country's largest producer of synthetic waxes.

9. I currently serve as a Consultant to Marcus Oil and Chemical Company ("Marcus") of Houston, Texas, a Division of HRD Corporation, the assignee of the pending patent application.

10. I have been a Consultant to Marcus for approximately six (6) years.

11. My services for Marcus include performing applications testing for various products.

12. Claims 30-39, 41-42 and 45 were rejected under 35 U.S.C. §103(a) as being unpatentable based on several references cited in the Office Paper mailed 14 November 2005.

13. U.S. Pat. No. 6,011,286 ("the '286 patent") to Sleeter addresses the use of oils in the preparation of oriented strand board ("OSB"), which is used as a structural building product.

14. Claims 30 and 45 of the pending patent application indicate the composition is used as a repulpable, waterproof coating for fibrous cellulosic products.

15. The '286 patent refers to the use of a triglyceride to enhance the water tolerance of composite boards, a structural building

product.

16. A fibrous cellulosic product is considered to be a product, derived from wood pulp through a process that involves chipping of the wood into small particles, followed by digesting the wood chips in an alkaline solution (the most common of which is referred to as the Kraft process). The purpose of the alkaline solution is to digest or dissolve the lignin, which is the main component of the inter-cellular material, rendered, such that the material loses its rigidity and takes on a fibrous configuration. The composite boards of the '286 patent include OSB, and other rigid materials such as wood, particle board, or plywood, which are not fibrous products because they are still structurally intact due to the presence of lignin.

17. The fibrous cellulosic products claimed in the present pending application and the composite boards described in the '286 patent contain cellulose. They are, however, different because the structural board form used in the '286 patent contains lignin to provide it with its' structure, and lignin is absent from the fibrous cellulosic products claimed in the present pending application.

18. Based on my experience in the industry, a person following the '286 reference would not employ its' teachings with fibrous cellulosic materials. Additionally the properties, such as the absorption characteristics, chemical composition and structural properties of articles made from wood particles such as described in the '286 reference differ from those made with the cellulosic fibers described and claimed in the present pending specification and claims.

19. Claims 30-39 and 41 were rejected under 35 U.S.C. §103(a) as being unpatentable based on RD 392017 ("the '017 reference"), in which a mixture of palm stearines was stated as teaching a waterproof coating for paper.

20. As stated in the specification (page 1, lines 28-30, and p. 2, lines 14-20 of the substitute specification filed 6 Dec. 2004, and Claims 38-39), other additives can be added to the claimed composition to give it more plasticity, but unlike those cited in the Mettler reference (EP 0 536 861 B1, cited in the '017 reference), the claimed invention does so without the use of animal fats (Claims 30 and 45, for example, referring to vegetable-derived products). The absence of such animal fats in Applicants' composition is advantageous, because it is generally known that members of several religious groups will not use products known to contain animal fats, or which may have been in contact with such fats.

21. The patent application WO 96/00815 ("the '815 reference") has been cited to reject Claims 30-38, 41-42 and 45 as unpatentable under 35 U.S.C. §103(a).

22. From my experience in the field, and from discussions with other industry personnel, although the '815 reference describes a paper coating, the invention described in this patent application is not used in the industry.

23. The problem with the product and process of the '815 reference is that there is excessive blocking, or sticking together of the materials, that are treated with this product. The melting point of the materials used in the '815 reference are not specified.

24. Blocking is considered to be an undesirable property of material used as a coating.

25. Blocking is known among those in the industry as being caused by either the product having too low of a melting point, or the presence of low molecular components in the product which contribute to the blocking.

26. The melting points of the waxes claimed in the present application are sufficiently high to prevent this blocking problem.

27. In a series of experiments following the procedures of ASTM D-1465, using either the "wax picking" or "wax blocking" temperature (there was no observable difference between the two versions, we found that the data, reported as the Wax Blocking Temperature, tracked closely with the melting point of the particular waxes tested.

28. The "wax picking" temperature is the temperature where the wax coated paper first begins to transfer to a second, uncoated paper substrate on a heat gradient bar.

29. The "wax blocking" temperature is the temperature where 50% of the wax film distorts and transfers to a second, uncoated paper substrate on a heat gradient bar.

30. The data, shown in Fig. 1 attached hereto, is compared with a series of paraffins having specific melting points. The Nat 155 wax is the claimed soy wax. The blocking temperature of the Nat 155 wax is about 147 degrees F; its' Mettler drop point (Table 1 on page 14 of the substitute specification filed 6 Dec. 2004) is about 155-160 degrees F.

31. The following soy waxes and their respective iodine values (IV) are:

Nat 116, IV about 65;

Nat 125, IV about 55;

Nat 147, IV about 15; and

Nat 155, IV about 2.

32. Thus, the melting points of the claimed waxes are significant properties that were not appreciated by those skilled in the art, and were not recognized or appreciated in the references cited.

33. CITGO Petroleum Corporation, Tulsa, OK, is a manufacturer of petroleum-based waxes, such as paraffin waxes.

34. CITGO produces several different lines of wax products, among which are a Cascade Wax called Satur-Kote, and PACEMAKER® Waxes, described in CITGO product literature attached hereto as Exhibits A and B, respectively.

35. CITGO's Cascade Wax (Exhibit A) is designed to be used in cascading and other saturating wax operations, ways that are similar to how the inventive waxes are to be used. The melt point of the Cascade Wax is higher than the blocking temperature of the wax, 132 degrees F compared to 111 degrees F., respectively.

36. The datasheet for the PACEMAKER® Waxes (Exhibit B) also shows that the melting temperature of the wax is higher than the blocking temperature of the wax, the melting temperatures being as low as 21 degrees below the melting temperature (PACEMAKER® 42) to over 40 degrees difference (PACEMAKER® 30).

37. The CITGO documents indicate that the melting point and the

blocking point of the wax are factors in determining the use of the wax, and that the present pending claims regarding the melting point of the wax are not a mere property of the composition.

38. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C.§1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

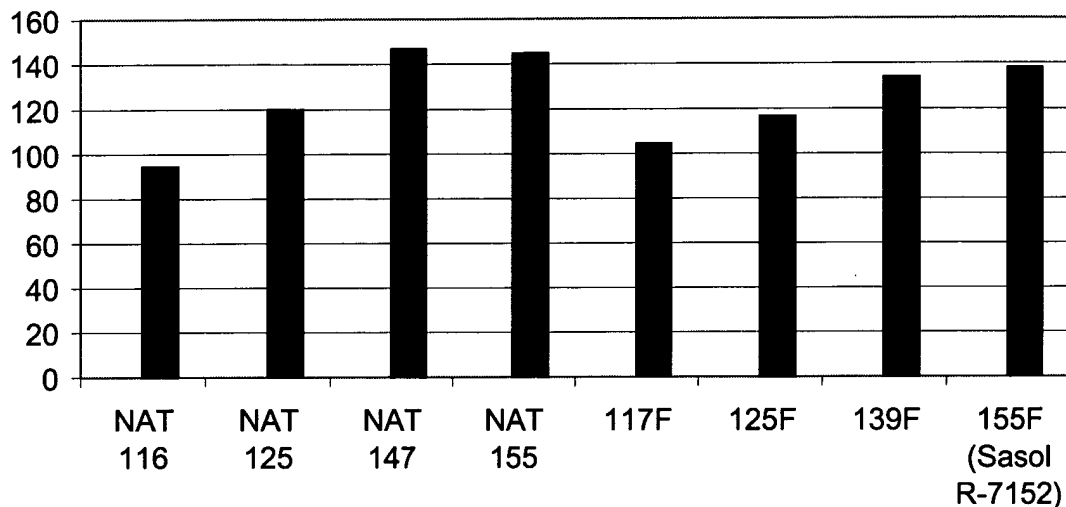
This declaration was executed by me on 12 May, 2006 at Chatham, New Jersey.

  
Gregory E. Borsinger



**Figure 1: Wax Blocking Temperature**

Temperature (F)



Wax blocking temperatures according to ASTM D-1465

NAT 116, 125, 147 and 155 are hydrogenated soy waxes supplied by Marcus Oil & Chemical, Houston TX. The Nat waxes were hydrogenated to different iodine values. The lower the iodine value the higher the melt point. The melt point of these waxes are as indicated by the number following the NAT prefix (i.e. NAT 116 = melt point of 116F).

Waxes identified as 117F, 125F and 139F were petroleum based waxes sourced from CITGO Petroleum Corp. Tulsa, Oak with the melt points as indicated.

Sasol R-7152 is a synthetic Fischer-Tropsch wax produced by Sasol Wax Sasolburg, South Africa with a melt point of 155F.





EXHIBIT "A"



# CITGO Wax Products

## Cascade Wax

**CITGO Satur-Kote** is a blend of various waxes and an additive. The proper balance of these selected materials has been designed to take advantage of the superior qualities which each imparts toward enhancing water holdout, increased strength and board stiffness properties. This product was formulated primarily for Cascade and other saturating wax operations and may also be used for roll coating.



### CITGO Satur-Kote 200 has the following characteristics:

- Excellent color and color stability combined with low odor.
- Meets all FDA and USDA requirements for food packaging.
- Produces a smooth satin finish, free of striation and "orange peel."
- High blocking temperature reduces potential blocking problems.
- Wet strength and/or compression of corrugated boxes are greatly improved.
- Suggested applications temperature for Cascading: 190 - 200°F.

CITGO Satur-Kote is available in 2,000 pound palletized cartons. Liquid bulk deliveries are also available in tank trucks or tank cars.

### Typical Properties

CITGO SK-200	
Melting Point, °F, ASTM D 87	132
Oil Content, %	<0.7
Color, Saybolt	20
Needle Penetration, 77°F	11
Blocking Temperature, °F	111
Viscosity, cSt @ 100°C	6.5
Flash Point, °F	420
Cloud Point, °F	165

There are additional products, or CITGO can design blends for specific customer applications. Above product meets FDA requirements listed in CFR 21.175.105, 176.170 and 176.180.

For additional information, or to place an order, contact:

CITGO Petroleum Corporation  
Lubes & Specialty Products  
P.O. Box 3758  
Tulsa, OK 74102

or phone toll free:

1-866-CITGOWX (248-4699)

FAX: 1-800-645-5669

E-mail: [citgowax@citgo.com](mailto:citgowax@citgo.com)



EXHIBIT "B"



# CITGO Wax Products

## Pacemaker® Waxes

**CITGO Pacemaker® Waxes** are a complete line of fully refined paraffin waxes, recommended for applications demanding the ultimate in refinement and product uniformity. Some of the outstanding points of these waxes are:

- Filtered and percolated to be odor free, taste free and water white in color.
- Surpass current FDA requirements for food grade waxes, and are approved by the U.S. Department of Agriculture.
- Manufactured in different melt point grades offering a wide selection for any paraffin wax requirement.
- Available in 2,000 pound palletized carton, liquid bulk tank trucks or liquid bulk tank cars.

### Typical Properties

PACEMAKER®								
	Procedure	30	32	35	37	42	45	53
Melt Point (°F)	D87	122-127	127-129	130-132	132-134	134-139	140-143	145-150
Oil Content, Wt. %	D721	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Color, Saybolt	D156	30	30	30	30	30	30	30
Odor/Taste	CC-W-4	NIL	NIL	NIL	NIL	NIL	NIL	NIL
Heat Stability	CC-W-7	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Needle Pen. @ 77°F	D1321	15	15	14	14	13	13	11
Needle Pen. @ 100°F	D1321	103	103	57	43	21	18	16
Needle Pen. @ 110°F	D1321	113	110	98	96	58	40	34
Blocking Pt. (°F)	DSC	87	89	91	96	111	113	125
Viscosity @ 100°C	D445	3.12	3.30	3.50	3.64	4.16	4.63	4.79

\* Because of ongoing research and development, the products described above are subject to physical property and formulation changes without notice.

There are additional products, or CITGO can design blends for specific customer applications. All Pacemaker® waxes meet FDA requirements listed in CFR 21 172.886 and 178.3710.

For additional information, or to place an order, contact:

**CITGO Petroleum Corporation**  
Lubes & Specialty Products  
P.O. Box 3758  
Tulsa, OK 74102

or phone toll free:

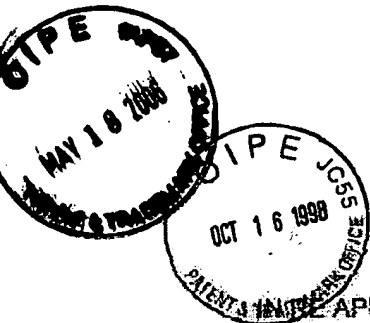
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EXHIBIT "A"



IN THE

# UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF: Ronald T. Sletter )  
)  
)  
CASE: 330X1337 )  
)  
SERIAL NO: 08/919,761 )  
)  
FILED ON: August 28, 1997 )  
)  
FOR: Material for Enhancing Water )  
Tolerance of Composite Board )

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1204

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ATTENTION OF:  
L. Tentoni

EXAMINER

COMMISSIONER OF PATENTS & TRADEMARKS  
WASHINGTON, D.C. 20231

Dear Sir:

☒ **AUTHORIZATION TO PAY AND PETITION FOR THE ACCEPTANCE OF ANY NECESSARY FEES:** If any charges or fees must be paid in connection with the following Communication (including but not limited to the payment of issue fees), they may be paid out of our deposit account No. 12-0064. If this payment also requires a Petition, please construe this authorization to pay as the necessary Petition which is required to accompany the payment.

## ELECTION AND TRAVERSE OF RESTRICTION REQUIREMENTS

### CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first-class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231 on

Date October 13, 1998

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Lisa C. Childs	39937
William A. Meunier	41193
Jack R. Halvorsen	18394

Jww/election/330-1337 (jww/gm)

Applicant elects Group I claims 1-28, 30-33, and 35.

The examiner requires restriction between the majority of the claims and claim 29 (which distinguishes from its parent claim by the words "conjugated linseed" oil) and Claim 34 (which is a product by process claim depending from claim 1).

Both of the claims 29 and 34 depend from claims which admittedly belong in the elected group. If the parent or base claim is found to be allowable, it can not be made less allowable by adding further limitations thereto. Hence, there is no justification for drawing a line between the top part (base claim) of a claim and the bottom part (dependent claim) of the same claim.

The term "vegetable oil" appears in claims 1, 4. The term "linseed oil" appears in claims 9, 18. The specific combination of "conjugated linseed oil" is identically expressed in claims 18 and 29. Hence, on the basis of "conjugated," "linseed oil" or "conjugated linseed oil" there is no line of demarcation between claim 29 and other claims.

The word "conjugated" appears in claims 14, 18, 22 and 23. "Conjugated," is related to a bonding agent which is described in U.S. Patent 5,507,633 that is mentioned on page 1 line 9 of the specification. The Examiner might also wish to look at Patent 5,719,301.

Hence, there is no line of demarcation between claims 14, 18, 22, 23 and 29.

The invention relates to waterproofing a composite board or panel. The invention may be used with many triglycerides (see claim 9). The conjugated linseed oil (sold under the trademark "Archer I") is preferred because it greatly enhances the bonding strength and other characteristics of the composite board.

Accordingly, there is no reason to single out any of the triglycerides (including linseed oil) for a restriction requirement.



The Examiner argues that the process can make other products and that this product can be made by other processes. The Examiner is invited to describe the process that he would use and to support his process by the affidavit prescribed by 37CFR1.107(b). Then, applicants will have the opportunity to contradict or explain the various suggestions that may be put forward.

Claim 34 is a product-by-process claim which is a style of claim going back at least as far as *Pickhardt v. Packard* 22 F. Supp 530 (S.D.N.Y. 1884). This type of claim is used under the so called "Necessity Rule" when a product can not be adequately defined except by describing how it is made.

From the view point of infringement, the process claim must be infringed before the product claim is infringed. Therefore, if the process claim is patentable, an addition of further limitation thereto does not make it less allowable.

#### NECESSITY TEST

Historically, a product-by-process claim is appropriate when there is no other adequate way of describing a product. Here, the invention is a process for making a new and novel composite panel which, in turn, has superior characteristics. If the Examiner knows of a way of claiming the end product panel in structural terms, he is invited to suggest it. Any reasonable suggestion will be adopted. Applicants believe that the only accurate claim is in terms of how the composite panel is made. Therefore, a product-by-process type of claim is appropriate.

Reference is made to "*Tropix Inc. v Lumingen Inc.*" 27 USPQ 1475 (DCDM 1993) which refers to "product-by-process" claims and says that the product-by-process claim covers the *process*. It goes on to say that the Federal Circuit should resolve the dispute, but that the judges of the Court of Appeals for the Federal Circuit are in "*open disagreement...making...a prediction hazardous*" (see the second paragraph in the



opinion). The *Tropix* judge pointed out that as far back as 1877, the U.S. Supreme Court said that a product described by a process is limited to the process and does not cover a substantially identical product made by a different process. The *Tropix* judge goes on to say that he finds no "authority for Judge Newman's distinction in the *Thorpe* case which treats a product-by-process differently when the product is no better than the prior art."

The *Tropix* judge relies upon *Atlantic Thermoplastics Co. Inc. v. Fayter Corp.*, 23 USPQ 1481 (CAFC 1992). This *Atlantic* case in turn relied on *Plummer v. Sargent*, 120 US 1442 (1887) which said that the claim is for a product made by the process and not a similar product made by another process (page 1487 left-hand-column). The *Atlantic* case (decided eight and a half years after the *Thorpe* case) says that a product-by-process claim is allowed since a patent is not to be denied because of limitations of the English language. (*In re Bridgeford*, 149 USPQ 55 (CCPA 1966))

Therefore, the later judicial opinion is that the product-by-process claim is appropriate in this case because there is no other obvious way of describing it in the English language. On the top of the right hand column (page 1485), the *Atlantic* judge quotes the Supreme Court:

"The invention, then, is a product or manufacture made in a defined manner. It is not a product alone separated from the process by which it is created....The process detailed is...as much...the invention as the materials of which the product is composed."



PETITION

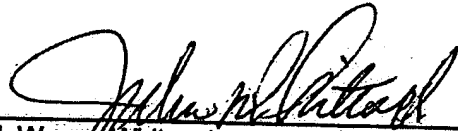
If the Examiner elects to maintain the restriction requirement, please treat this paper as a petition and pass it on to proper authorities who review the matter of restrictions.

Respectfully submitted,

LAFF, WHITESEL, CONTE & SARET, LTD.

DATED: October 13, 1998

By:

  
J. Warren Whitesel

JWW/gm

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